Title: Software package for polyhedra operation
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Abstract: The topic of the thesis is focused on convex polyhedra and algorithms for working with them. At first we give the theorem about vertex and facet description and then we describe selected algorithms connected to the problem of the conversion between these two descriptions. In the practical part we implement three functions using three selected algorithms and a few other functions, which are simple results of the three algorithms. Finally we get a MATLAB library, which contains functions for vertex enumeration, facet enumeration, convex union of two polyhedra, intersection of two polyhedra and irredudancy problem for facets and vertices, too. By the way we compare our two implemented algorithms for facet enumeration, but not only according the running time, also according the memory requirements and the implementation complexity.
Keywords: polyhedron, MATLAB, linear programming, convex hull